Ottumwa, Oct. 13, 1906
Albia To
Unionville 10/14 "
Columbus Jc. 10/15 "
Fruitland "
Columbus Jc.

Fairfield 11/3 1906
Rome
Gladstone Ill. "4"
Joy, Ill. "5"

Ottumwa, Ia. Oct. 13 - 18

The RR cuts at Ottumwa (southward) show much drift, with its usual part often a ferreto zone of chiefly sand.

The loess is lacking, & only a few feet thick. No fossils.

In cut on the road leading south along bluffs, but still in loess, down near RR. tracks, a cut on west side shows a hard ~~cut~~ gritty clay-like yellow layer above the drift proper & loess over it.

Northward, on a street called well, in fields etc, & several blocks further N, [illegible] N. side, [illegible] the

Sand, etc.

is Trenton chert, with a very sharp iron sand only 2 or 3 in. wide, and

yellow Lobular Iron

White Pipe clay

Iron sand

Sand, etc.

above it a hard white clay (see sample) and on this lobular yellow clay & sand.

The two clays are only 3 or 4 ft. thick.

Spent the afternoon in Turley Sd. with Prof. Brown & Clark.

3

Albia to Moravia, etc.

Oct. 14-1906.

The country right near Albia is cut up by ravines, - rough.

Farther S. it becomes more rolling, but W. of Moravia, & N.W., it is prairie.

The rough country is Eastward & S.E.

See Map of Appanoose Co. for course followed from

Moravia to Unionville

All along the road drift shows, sometimes clayey, often sandy, and with small bowlders.

A Bentonite zone shows often & is usually sandy & from 2 to 4 or 5 ft. thick

At the points X; X'; X'' & X''' it is at the surface. The first three are on Cove Ran &

of slope, but X'''' is at top of hill just S. of creek.
As stated this zone is usually sandy, but at X''' it becomes almost or quite clayey loam.
On the higher ridges only there is a thin layer of loamy material, it is yellow & like the yellow lobular loam (see sample) taken at Ottumwa.
In all the upland territory traversed the tops of the ridges & hills & high flatlands are more or less sandy & have poor soil. In such places the Maryland Black Jack oak is common. This species is especially common in the NW. ¼ of sec. 7 Union Twp.
I found my Chinquapin oak in Sec. 2, Taylor Twp.

Left Unionville at 5:20 PM & reached Columbia Jc. at about 9 PM.
Put up at Commercial Hotel.

Columbia Jc., Ia. Oct. 15-'06

Went to top of hill. Took sample of loess-like clay from near top, 1 block N. & 1 blk. W. of school at turn of road from Columbia Cy to Col. Jc.
Took some sample a little farther back, on top of inner ridge, 1 block W. & 2 blks N. of water tank.

I could see gravelly drift at school house not more than 15 ft. from top of ridge.
Went west from water tank on road.
The brown ridge extends

for nearly a mile & then breaks off into a smaller ridge & beyond is a lower plain.
The same yellow loamy material is on the surface along the road.
On slopes, even a few ft. below tops of small ridges, small pebbles & sand usually washed out.
In a few cases various gravel beds show; & there is only a thin cap (probably 2-4 ft.) of loamy stuff on top of the ridge only.
The pebbles are usually higher up, but occasionally there is a blue stone.

Finally between the two branches of the creek the gravel & boulders come clear up to top of a small ridge - just E. of road.
Here quite rusty.
Figured 1st of first road just W. of creek.
On ridge Northward gravel & small boulders often here & there along road, & come quite to surface.
On top of ridge the loamy stuff again often.
To the west is a rolling Kansan plain.
Went along this road about ½ mile & turned N. across prairie. Crossed road & came out at post 23 24 25. Went toward Col. Jc.
A number of cuts in loamy overgrown, but show stuff.
In some places a loamy stuff (slight) on top of ridge

The long cut just out of Col. Ft. Hexter, nearly to ½ mi. East. Shows as follows; at W. end.

a a a white band, fels. Has been, but half of it pebbles and sand, exter irregularly & is from 1 to 5 ft thick

Below that is yellow clay & above it yellow clay with a few boulders. Notes go down. This is W. end of big ridge. I find that the black clay is mostly on ground

from a narrow band, which occupies in places, most of it is removed. More E. and underneath 3 or 4 ft. are very reddish (rusty) stile. Farther E. there is about a foot of gravel soil on top of red band, cut run from 2400 ft. to 2600 ft. from crossing

At 10:48 AM. I took a train for Mullan. Between Fredonia & the bluffs there are sandy areas & low dunes. The "bluffs" are low mesas.
From Mullan to the bluffs a sandy plain (desert) – the bluffs are very abrupt, they

be seen showing the blue
of the lower.
The first layer shows
only yellow fine gravel
drift, such as appears
in all the following cuts
No loess appears, unless a
little yellow, mixed as
very little is in
a cut on the Mineola
N.Y.S. RR. where it comes
close to L.I. R.R. there
yellow drift with
appearance but little older,
but no loess.

RR

a whole series along N.Y.S
northward appears similar
but smaller.
Topographically have very
regular country
Timbered.

Next at 221+15 (154 ft 15)
is a black muck underneath
on S. side & yellow brown
with modules & black
above it. Latter
shows land on N. side
of loess fine sand
(no dirty yellow over it)
See samples of blackmuck
S. side & &
yellow loess with black
streaks - N. side

after lift - lot of Nelson
bridge - there is
yellow loess? (see sample)
above on N. side & blue
brown below on S. side
See samples.

the washed bridge is at 221+15+7.
end of the hole distance = 150 ft.

At 221+15 the blue marl is under gulch, some pebbles & has oxidized bars above (& below in wet hole)

The ~~[illegible]~~ end of cuts & rough terrain is about at washed bridge. summit of grade is at 222 nin. front.

Returned to Col. Jr. & went to Oakes' bridge north of town.
There is no gravelly drift on this bridge, says Oakes.
Found three kinds of clay — white yellow clay, & lower "point clay" (he calls it) in the new part of pit, & near house, in lower part of excavation a blue clay. (see samples of all three),

Nov. 5 – Gladstone

31 – Rivers – from top of 95 ft ridge looking West.

32 – Carya tomentosa (nut ripe)

C – } end 1 – Looking E. from top of bluff

D }

29 & 30 end 4 – West

Lam. (fine one)

27 – Main part of end 4 see fog

Photos Nov. 3 – 1903

13 & 14 – Cut 2 – E. of Rome Looking West,

Nov. 4.

Gladstone Ill –

11 & 12 Carya tomentosa

X – XX – " " beach

A – B – Quercus marylandica "

5 – 6 – end 1 – Gladstone laminated.

Fairfield Rome, Burlington

Nov. 2. 1906

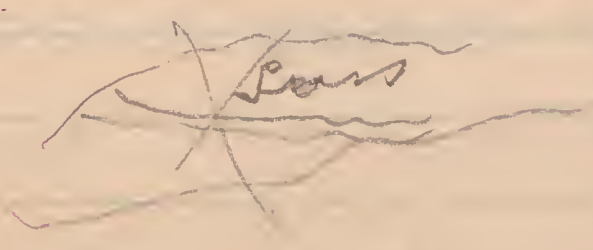
Left Iowa City at 9.45 A.M.

Expense acct

Nov. 2 –	Dragon – Bicycle & Fairfield	.50
	Lunch – W. Liberty.	.25
Nov. 3 –	Leggett House – Fairfield	1.00
	RR. fare to Rome.	.46
	Wheel to Rome	.25
	Lunch – Rome	.25
	RR fare to Burlington	.83
	Wheel	.25
	Lunch – The Pleasant	.35
Nov. 4 –	Union Hotel – Burlington (Basket 10 Engine 5)	1.05
"	RR. fare to Gladstone	.28
	Wheel	25
	Lunch – Gladstone	.25
Nov. 5 –	Hotel – Gladstone	1.00
	RR. fare to Joy.	.82
	Wheel	.25
	Lunch – Joy.	.25
	RR. fare Joy to Burlington	1.10
	Wheel	.25
	Lunch – Burlington	.35
	RR. fare to Iowa City	2.31
	Wheel –	.25

Just E. of Fairfield the
cuts show yellow drift
below, with a dark
bluish band (gumbo?)
about 1-2 ft thick
above it, following
contours but flattens
and in this 3-7 ft of
yellow loess,
Then on 3 or 4 more
cuts near Fairfield
The topography is slightly
rolling Kansan.
At Glendale a little
morgan, & some timber
on both sides of creek.

A cut E. of Glendale, along
wagon road in swales, but

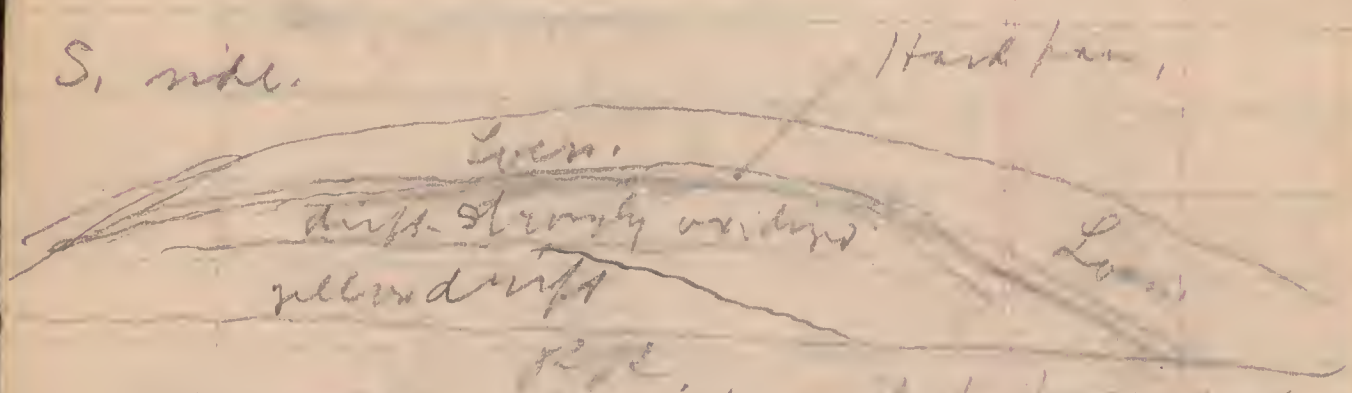


At Longhide another morgan

& some timber.
E. of Longhidge
two small cuts one
large one, plus
another large one, plus
a small one. Show
strongly oxidized layer, shading
downward, to yellow drift
& gray pale loess below

Rome & vicinity
cut 1- Just E. of depot
over 150 yds long & about
40 ft. deep.

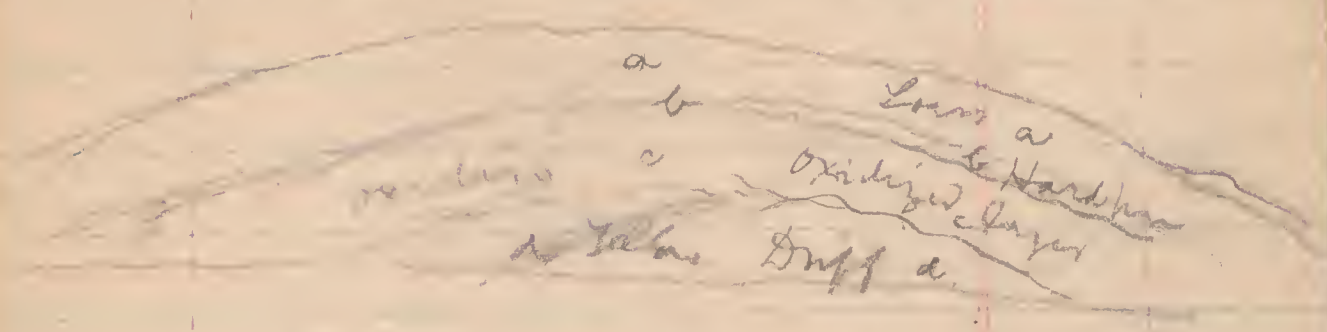
S. side.



The yellow loess is 3 to 6 ft. deep.
The line between blind oxidized
layer in pale olive drift
shows a hardpan of from
1-2 ft. deep, & underneath
of the loess has a gray

clay appearance.

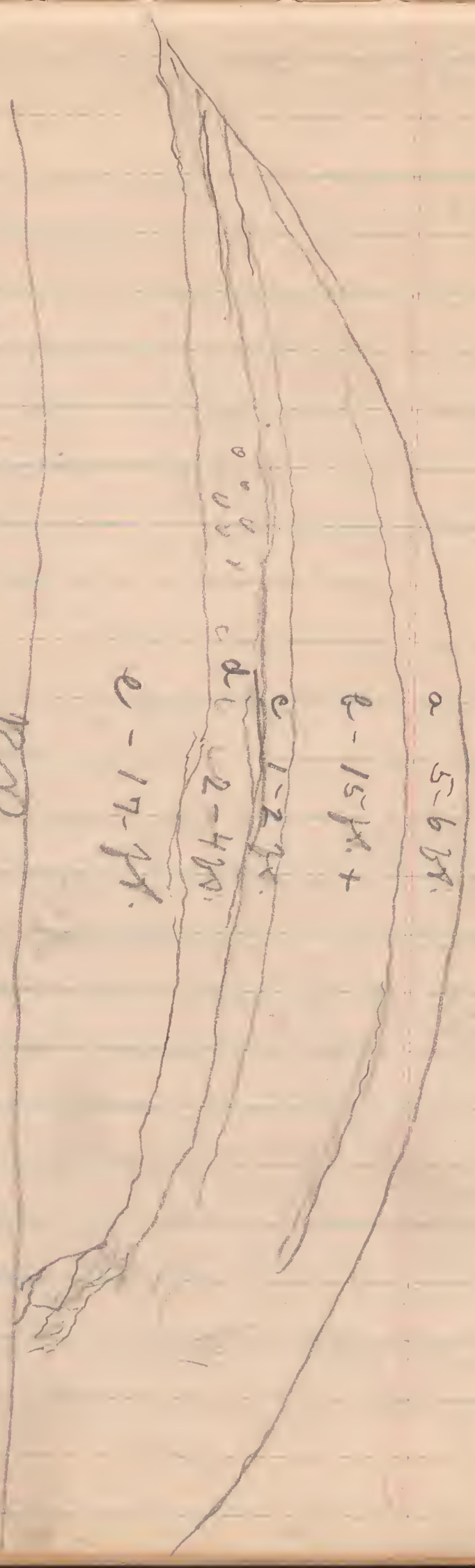
Card 1 - N. side



Took samples of a & b.
There are no fossils in the loess, few rootlets (small)
It is blish drab, but looks more like forest clay.
(b) has small pebbles in it made of the many colors.
It is moderately dirty.

Portions a & c became darker, about all the drift exposure in W. ½ of cut is oxidized.

this is in cut 2
There are bits of wood & sycamores all over both cuts. (Planted?)



a = Some reddish loam, somewhat finely sandy texture, & crumbles easily. No forms or nodules, but often lobular.

b. A yellow loam, compact when exposed for a time, but crumbly, with few nodules, but many forms. The forms are almost uniformly distributed both vertically & horizontally, but usually there are clearer patches or places.

{The lines between a, b & d are not sharp.

c. A red layer – slightly sandy.

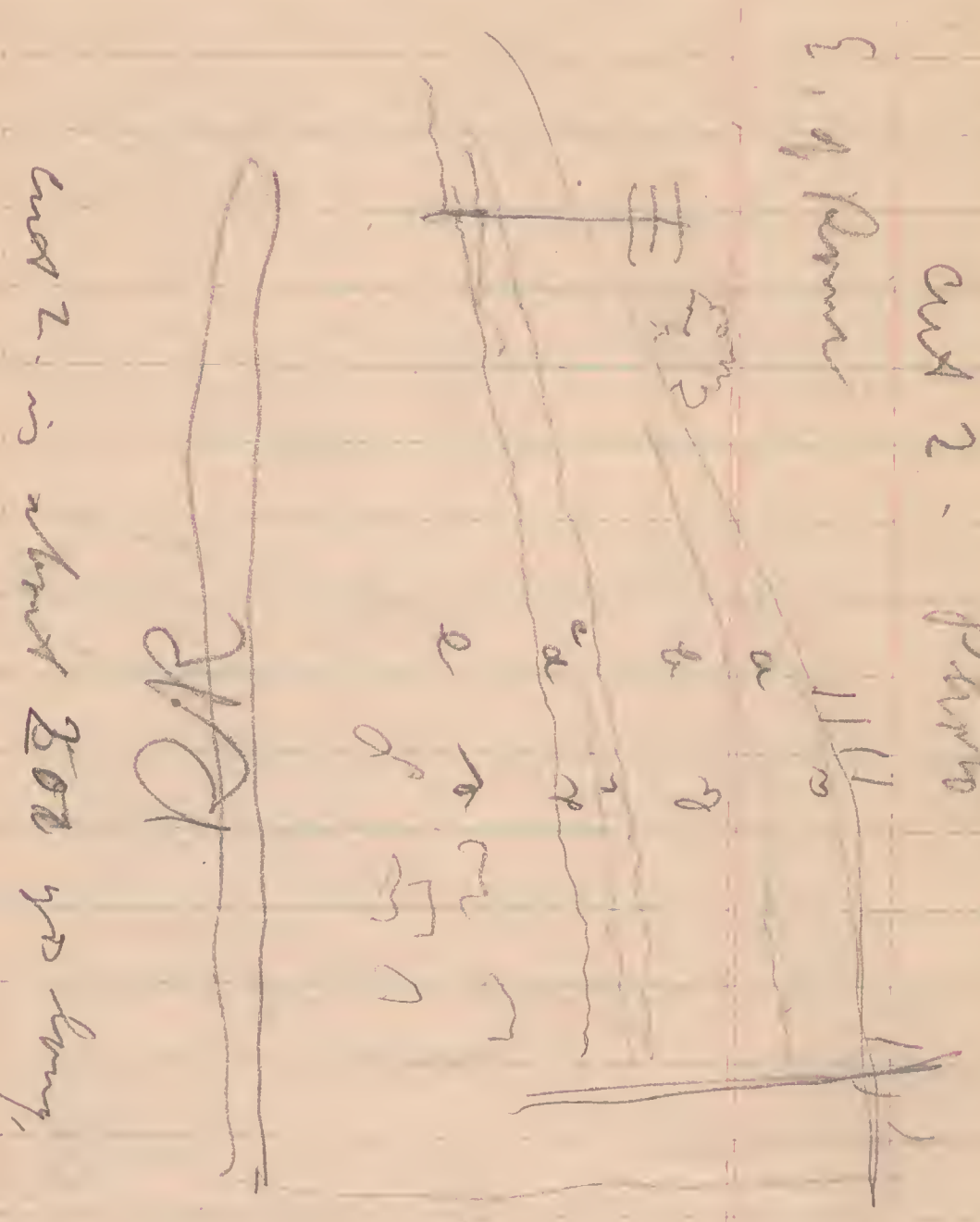
d. A red drift, with pebbles & small boulders resting directly on

e. Limestone.

Work number of a b & c.

No. 1

The trees (Poplar) on S. side of cut is overgrown with grass.



The cut on S. side is much the same, but c. is more sandy.

a) has little or no vegetation on it on both sides.

2 2

Cut 1 - E. of Pine in center of Arnold's land.
Cut 2 - in center of ridge

2 3

Cut 3 - Mount Ann rd

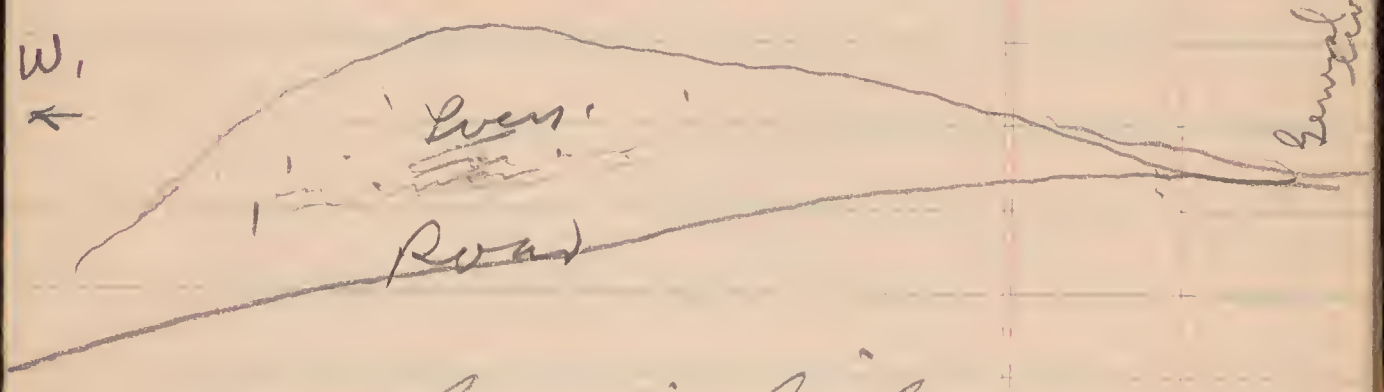
Cut 4 - is about ½ mile more beyond 3 -
It is very much like cut 1.
Lower 6 ft. yellow drift & dark angular (shale) boulders.). Then 2½ more ft. of gravel.
Then a (joint clay-like) layer.
No fossils.
This is just W. of road (1st road turning to right

There are ~~three~~ more cuts just E. of road. Did not visit ~~them~~ any beyond
Cut 5 - ~~Like 4~~ Top layer 4 ft
5 ft of boulders 2½ ft.

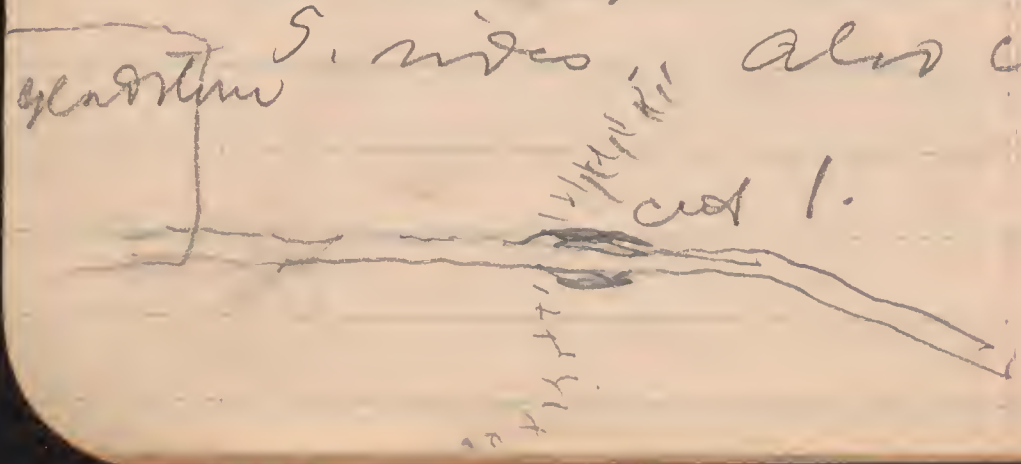
Bl long out extends west of bridge on road to Oakland Mills, & makes out bks cut & slums off

Gladstone Ill. Nov. 4-06

Cut 1 On road going E. from Gladstone, cut here through ridge - about 20 ft.



The lower is light, crumbly, light yellow, almost granite & looks sandy. On weathered surfaces it shows lamination parallel to slope.
It is quite jointed & the joints show to the scatterers throughout, - to top of hill
It shows from both N. & S. sides, also clay,



Nov. 5

S. of [illegible] —

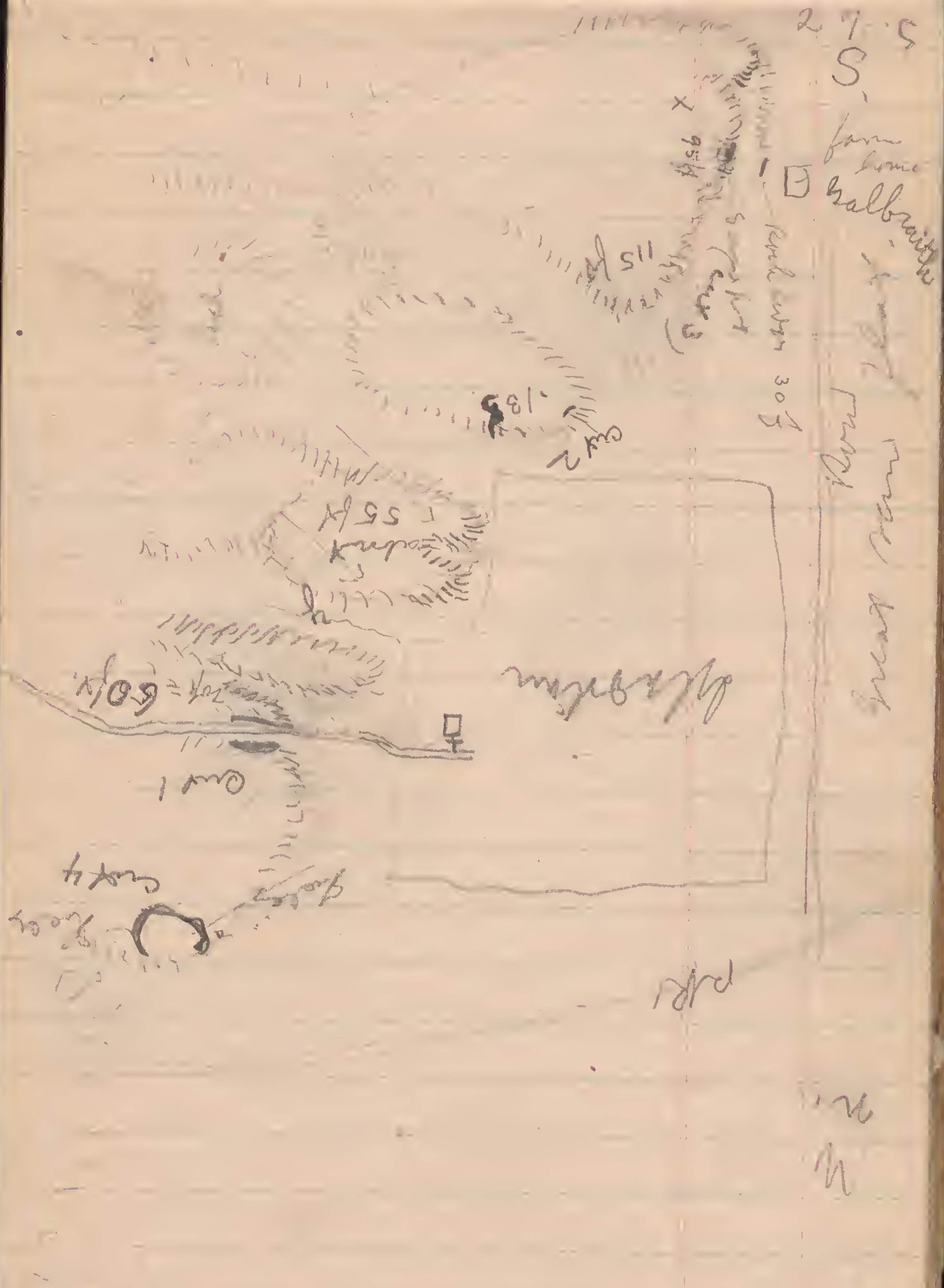
From road

To top of limestone ledge 30 ft.
To, sand pit — base 70 ft
To " " — top 90 ft
" top of ridge 95 ft

This is just above sand pit & is not highest knob.

On same ridge N.E. is a higher knob — 115 ft.
And still farther is a long one —

The sand in sand pit is fine & contains flint chips & fragments of Unio, evidently of human origin. Loose sand appears at top at 95 ft. point.
Saw chips & unio fragments on top.
at 115 ft top there are little [illegible] [illegible]



Found flint chip on top of 133 ft. ridge

at X came running around (chunk or spring?) dry out material which is more like loess, but still hard. This is on the N.E. side of ridge (Com. 84.) & is lower than 25 ft. also pond broken, but fresh Helicodiscus here among some little snails, snails.
Found flint chips on top of 133 ft. ridge.
The slope is fine yellow loess.
At about 50 ft. (below top of 133 ft. point) (83 ft. high) there is an irregular exposure which shows fine yellow crumbly (bite crumbly) loess.
No fossils.
This is right at end of ridge

Cut 3. is the sand pit already noted.

In the bottom of the ravine at Y and big red boulders & smaller gray ones + black-flecked Mes.
Red-rock (limestone) is also exposed.

The upper 2 or 3 ft. of cut 1 at is slightly more reddish. Possibly extend up to this reddish part

Cut 4 - shows loess (sandy) above, - rather big sand rounded tiles, and pebbles & clumps and finely laminated sand below. All slight yellow.
Apparently a sand dam

the sand is used for foundry "core-sand". The main vein has been stoped up on both sides (except on south)

The main part of cut 4, looking S (⇒), is hung above (the moulders hole) & bounds sand (fine) below, grading into distinct sand. The lines of demarkation are not sharp.

Cut 4 is about 25 ft above bottom, & drift, dark stuff, reddish & mottled shows down front of hill.

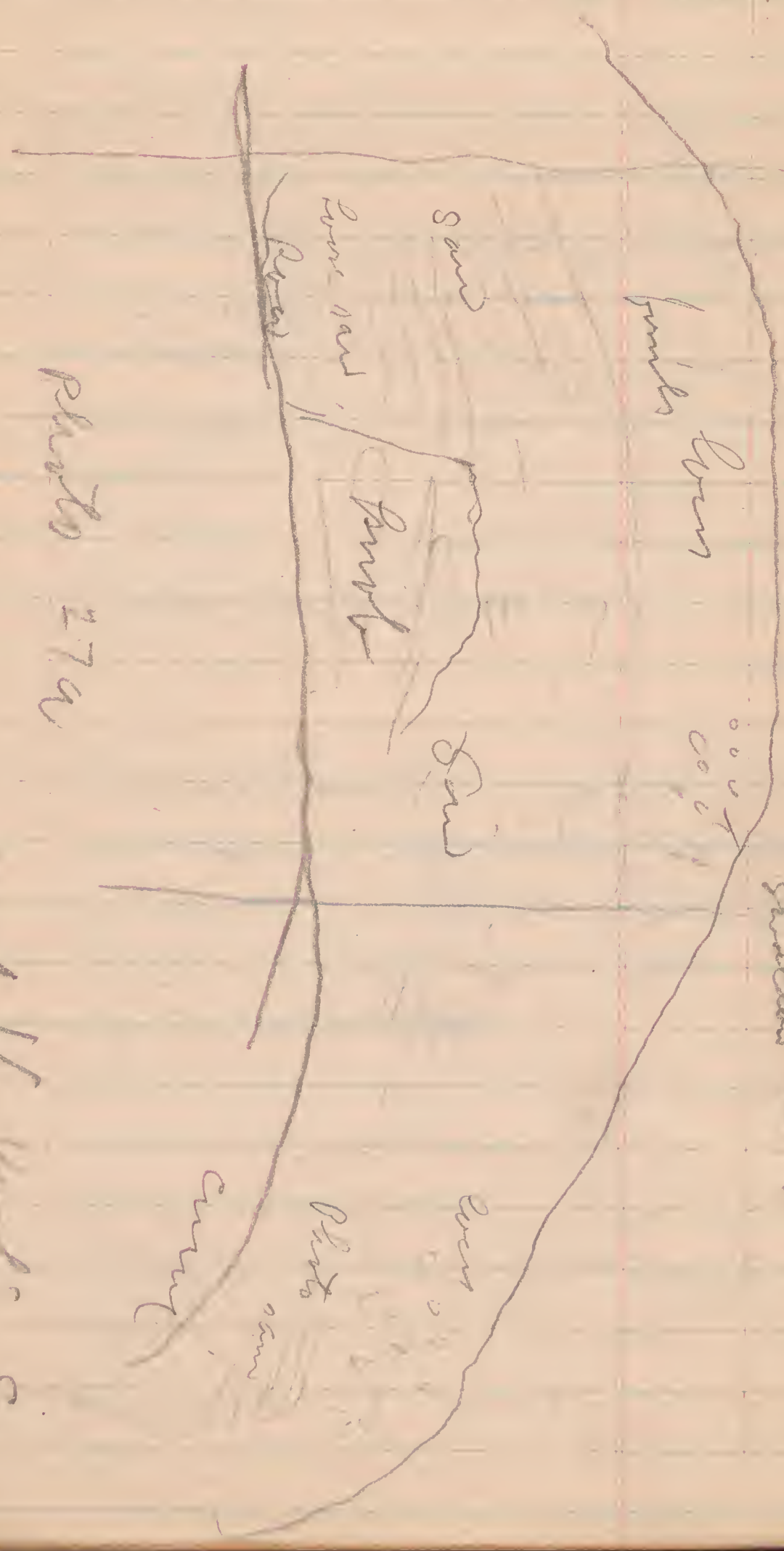


Photo 276

end of working St.

The bed of bottom is
about 15 ft. below line
of cut 4 (meaning railway)
& is about 10 ft. deep
as exposed along a long
rolling surface.
The boulders are hard,
blue stone, rounded, quartz
& also fragments of limestone.
Small boulders known
glenomys. Rock one.

Left Glenstone on freight
at 11.40 - Reached Ogunquit
at 12.
The bluffs run nearly
parallel to RR. for
at least 3 mi, and
seem to be about 1 mi.
back.
Around Ogunquit they
recede & at O. are not
visible.

Ogunquit is right on Miss.
river bank.
Just N. of Ogunquit
curved again the bluffs,
seemingly about 3 mi.
back.
Timber is not high
Northward the RR. has
risen & gets nearer to
bluffs, - now not over
2 mi.

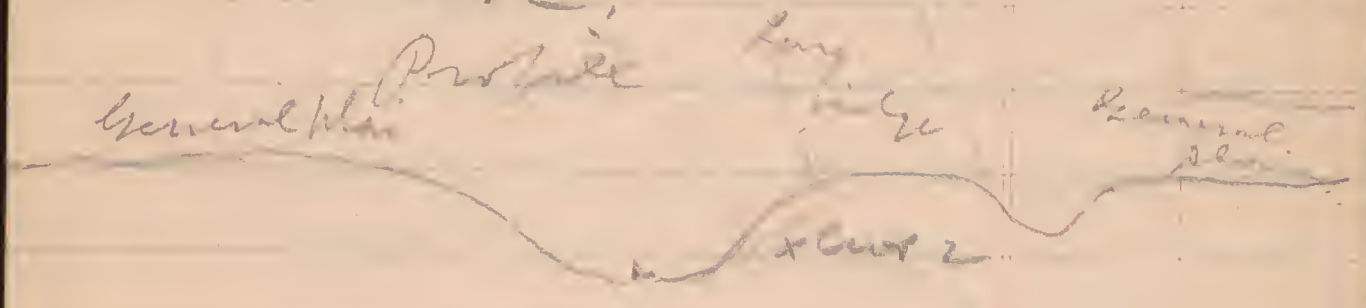
The valley above Ogunquit
is all sandy & very large
part of it the Maryland
Oak forms scrub
thickets.
Quite a lot of it
appears dune-like, &
this especially has
the oak.
The best part of the
dune & oak area extends
for 2 or 3 miles south
from a point about 2

mi. S. of Kittatinny.
Then M. for a mile or more it is grass-covered dunes, in some places bare.
Hybrid dunes.
Then, near K., it is more uniform, but it is all sand, and there are afforestations right at Kittatinny.

West from Jay, Del 3/11/06

The 1st cut is nearly a mile out, & before first curve is reached. It is low & long, & thus only yellow loam. No gravel

Cut 2 is 1st cut around 1st curve & is over a mile from Jay. It is just E. of curve (1st one around curve) & on N. side.



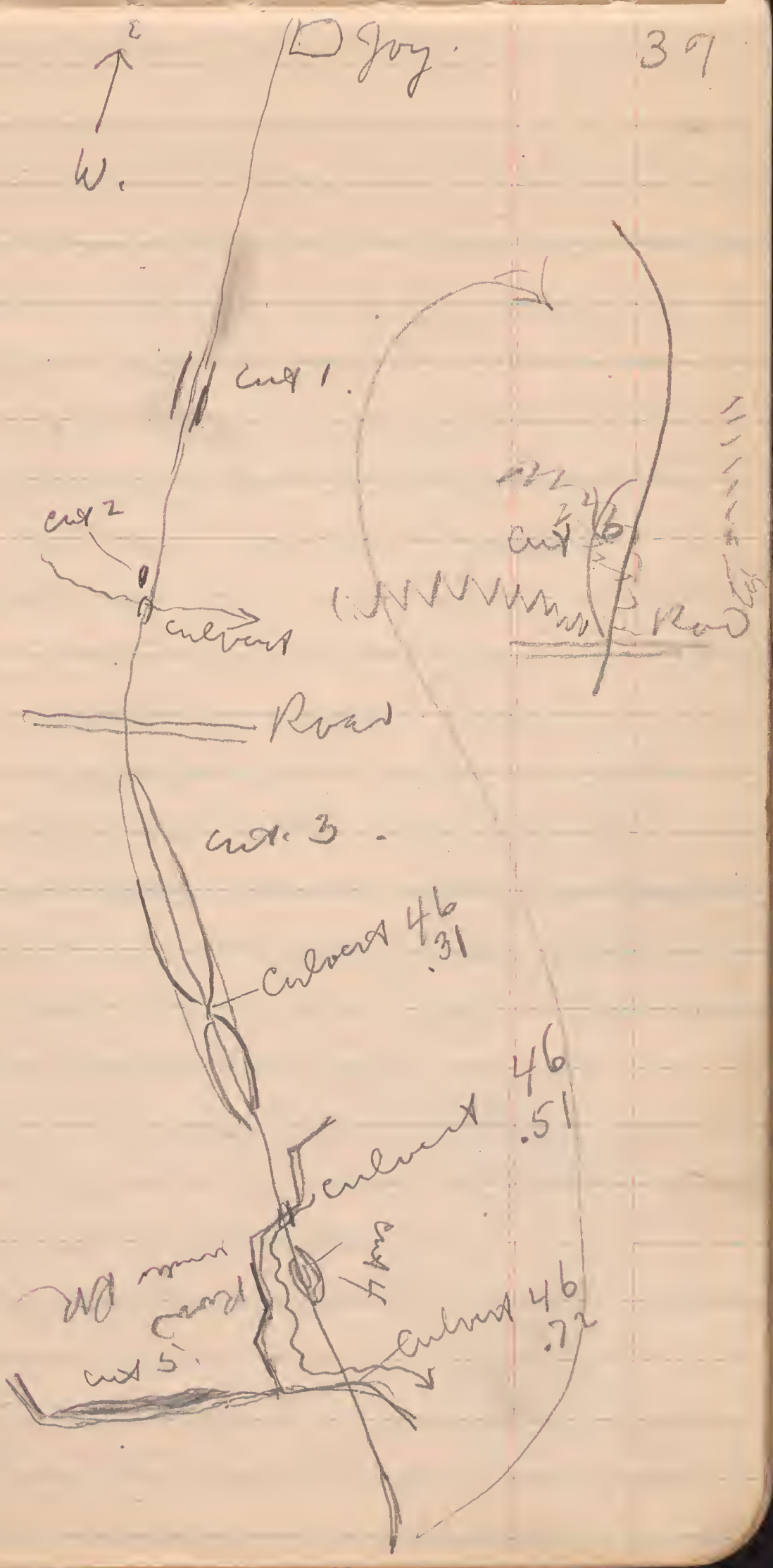
Cut 2 - looking N.

The upper 1-2 ft. is yellow (like in cut 1) inserts pink, reddish. It is colder, & has smaller fossils but nodules, (a) The lower (b) part is characteristic Kansas Coal. The line between (a) & (b) is fairly sharp. Distinct in bands above, parallel to moraine.

Nodules are frequent in upper part of (b). Fossils are totally absent, but not very abundant in lower part.

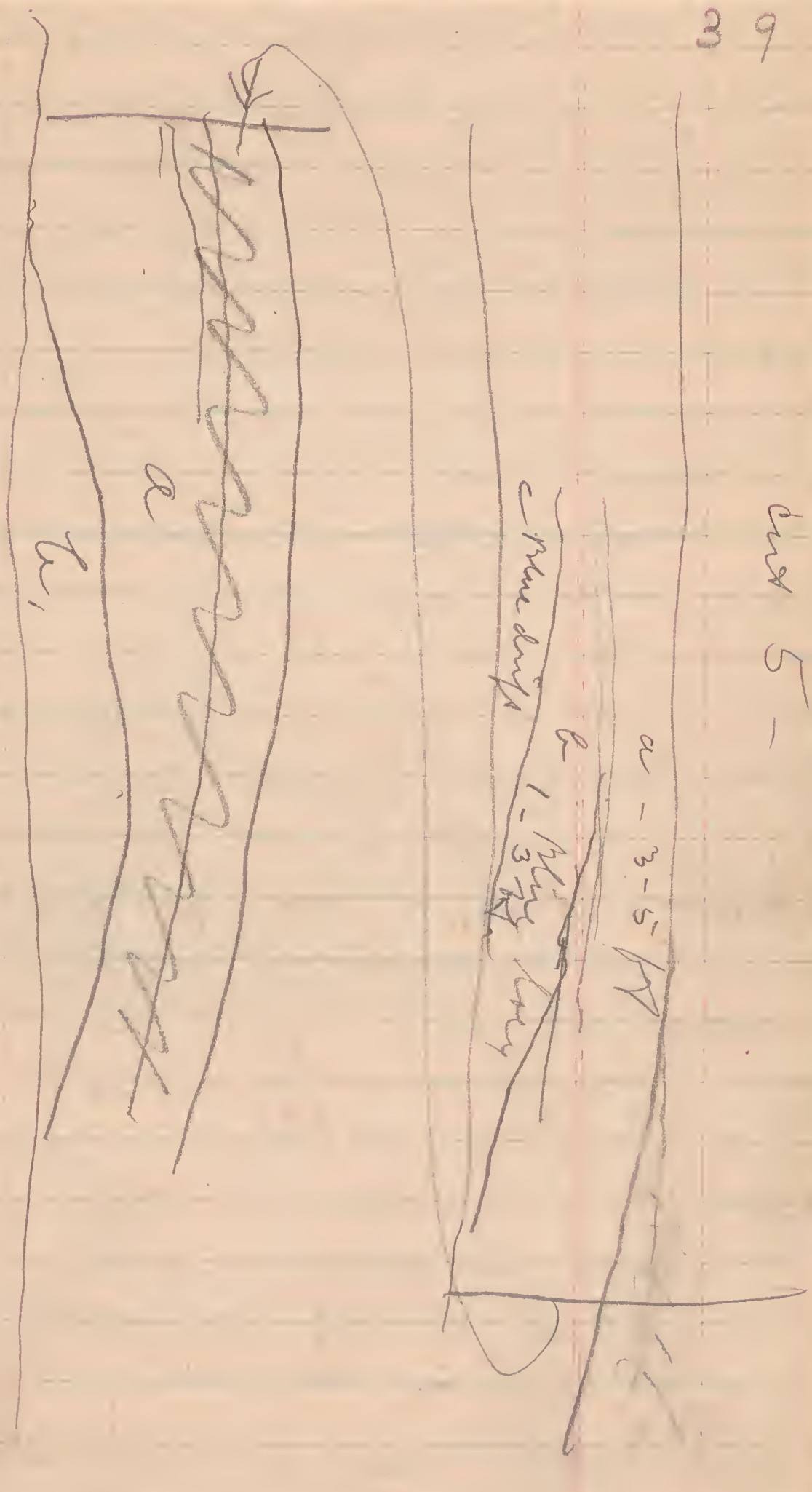
About 6 ft. of (b) is exposed; its base is not over 3 ft. above small culvert.

Took samples of (a) & (b) & nodules.



cut 3 is a long cut, nearly ½ a mile & 20 ft. deep in deepest place. It is densely overgrown with grass etc. I could yet yellow boxes only (no sample) by digging but I could not get at base. Evidently there is blue boxes here as lumps, evidently taken out to set telegraph pole, show blue with iron tubes.

cut 4 is shorter, but quite as deep. It is overgrown & I could see only yellow boxes upwards.



Cut 5 - is long & low -
3 - 6 ft.
It shows (a) a yellow or
reddish lobular upper
layer, no fossils -
(b) a typical blue Kimm
with iron nest-tubes &
fossils. Note number
of (a) & (b)
There is also a little blue
drift visible below, with
small pebbles scattered through
it.

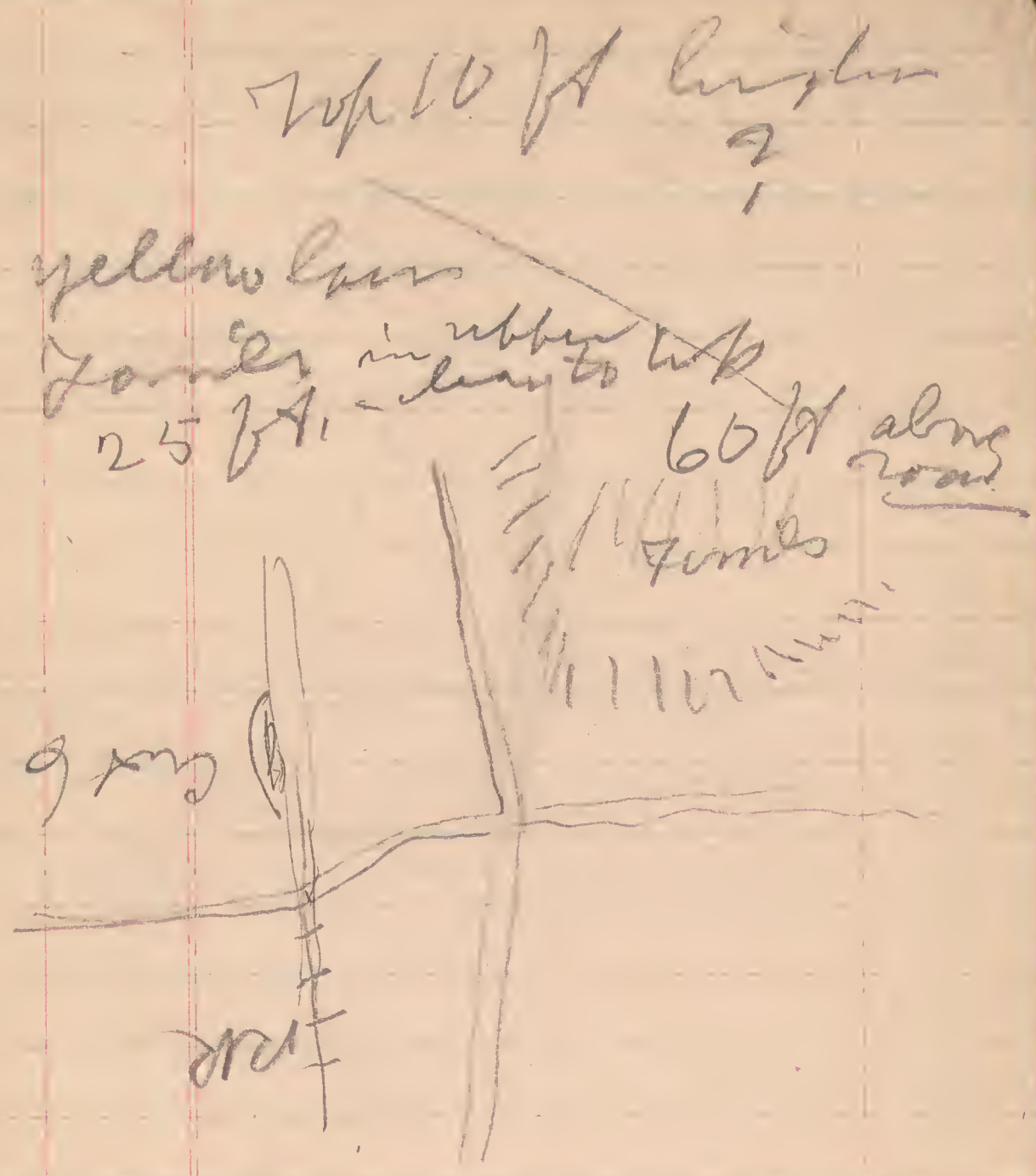
The road runs up
a valley & cuts the
foot of crest ridge
lying in row 5
The line between b & c
is sharp, but no
oxid. Crest below
a & b is also distinct

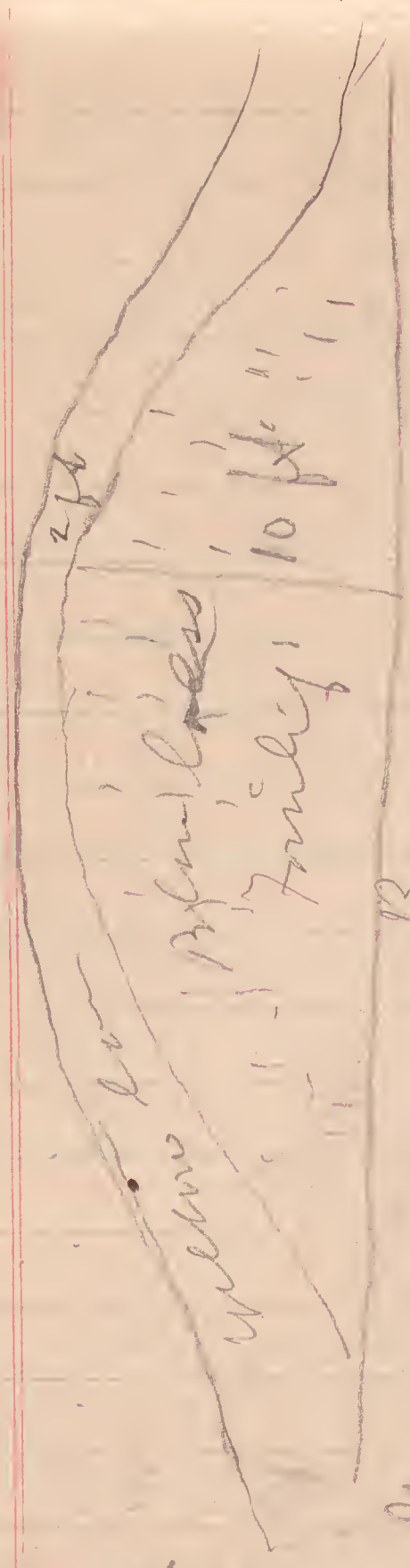
and the lower part of a
is considerably oxidized
for 1 - 2½ ft.
Fossils now all Liassic
(b only)

Only 1 - 2 ft. of blue
tops (b) slide. Its top
is 3 - 6 ft. of yellow.

All N. half of cut
has the rock-tops
resting directly on
blue drift, while
the latter is clear
below. The oxidized
layer in (a) is prominent

At curve N the
cut is deeper - 8 or 9 ft
& blue lacks upper yellow


Top 10 ft higher
yellow barn
Fence in rubber tub
25 ft.
60 ft along road
Fence
Gate
Road


Where barn
Family!
10 ft
25 ft
Road
There are a few
in rubber pa
The road this
earlier.